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TM 11-5825-270-10

TECHNICAL MANUAL

OPERATOR'S MANUAL

MONITOR, RADIO FREQUENCY R-2176/FRN
(NSN 6625-01-098-2534)

HEADQUARTERS, DEPARTMENT OF THE ARMY
23 JULY 1981

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READEX MICRO best copy available

WARNING

HIGH VOLTAGE is used in the operation of this equipment. DEATH ON CONTACT may result if personnel fail to observe safety precautions. Learn the areas containing high voltage in each piece of equipment. Be careful not to contact high-voltage connections when installing or operating this equipment.

DON'T TAKE CHANCES!

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2 IF POSSIBLE , TURN OFF THE ELECTRICAL POWER

3 IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL

4 SEND FOR HELP AS SOON AS POSSIBLE

5 AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.

In either case, a reply will be furnished direct to you.

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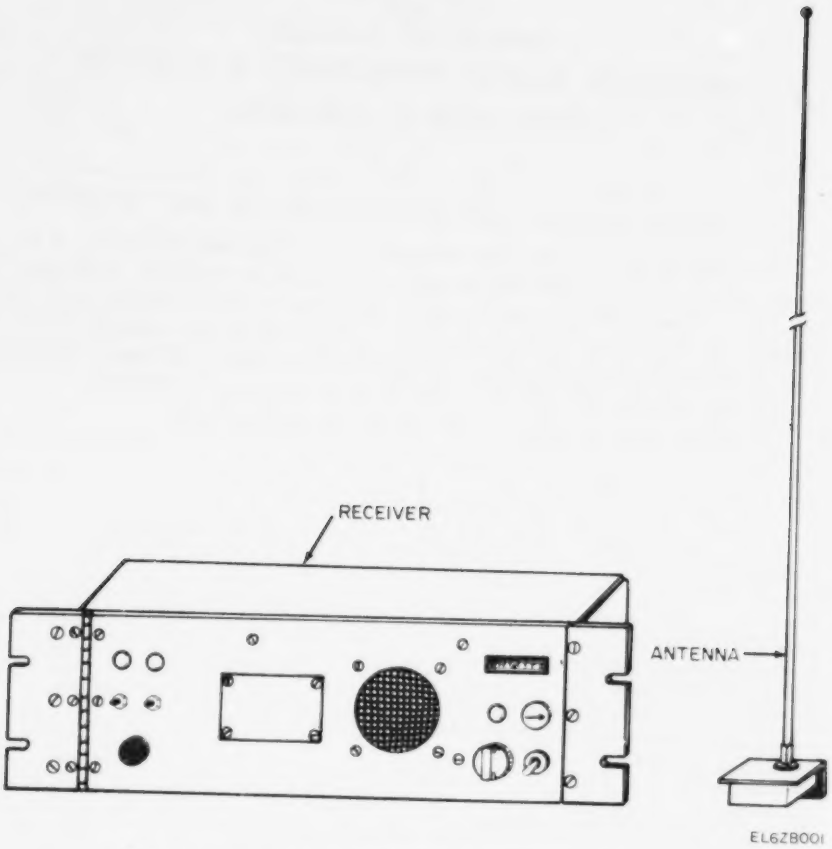

Figure 1-1. Monitor, Radio Frequency R-2176/FRN and Antenna.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

This technical manual contains operating instructions and maintenance procedures for Monitor, Radio Frequency R-2176/FRN, hereinafter referred to as the monitor receiver. The maintenance tasks are limited to those authorized at the operator category.

1-2. Indexes of Publications

DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are modification work orders (MWO's), new editions, changes or additional publications pertaining to the equipment.

1-3. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

b. Report of Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73/AFR 400-54/MCO 4430.3E.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33B/AFR 75-18/MCO P4610.19C and DLAR 4500.15.

1-4. Administrative Storage

Administrative storage of Monitor, Radio Frequency R-2176/FRN is from 1 to 45 days and may be accomplished as follows:

a. Storage Site. The equipment should be stored in an area specifically marked "Administrative Storage." The area should be covered and protected from the elements.

b. Maintenance Services. Before storage, perform the next scheduled major preventive maintenance service (monthly).

c. Inspection. Inspect the equipment for proper operation before storage. Do not store inoperable equipment.

d. Protection. Protect the equipment by storing it in the boxes and packaging material in which it was shipped. Be sure to put a fresh desiccant bag in each package (NSN 6850-0-264-6572).

1-5. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-6. Reporting Equipment Improvement Recommendations (EIR)

If your Monitor, Radio Frequency R-2176/FRN needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. We'll send you a reply.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use

The monitor receiver is a fixed-tuned, nondirectional beacon (NDB) monitor specifically designed to verify continuously the operational readiness of an associated NDB transmitter. The monitor receiver is shown in figure 1-1.

a. The antenna assembly comprises a one meter long whip and a matching module. The signal transmitted by the NDB transmitter is picked up by the whip antenna and fed to the receiver through the matching module which transforms the antenna impedance to 50 ohms (nominal).

b. The receiver is a crystal-controlled, single-conversion superheterodyne unit, providing high degree of selectivity and sensitivity. The receiver is fixed-tuned to the same frequency as that of the associated NDB transmitter, over the range of 190 kHz to 535 kHz. In operation, the receiver continuously monitors the rf carrier level and modulation of the NDB transmitter signal. As long as the amplitude of the rf carrier and modulation level of the signal being received are above a predetermined threshold, the operation is considered to be normal. However, if some abnormal operating conditions cause the received carrier level and/or modulation to fall below the predetermined threshold, the receiver generates the following alarm outputs:

(1) Visual alarm (red light on front panel).

(2) Aural alarm (3 kHz tone from built-in loudspeaker).

(3) Alarm contacts (form-C contacts for remote monitoring).

1-8. Description

The receiver assembly is designed for installation in a standard 19-inch rack and operates from 115/230 vac (47 to 63 Hz) primary power source. The antenna assembly is normally secured to a pole or a post with a U-clamp outside the building/shelter where the receiver is installed. Interconnections between the receiver and the antenna are made with a single, 50-ohm coaxial cable.

1-9. Difference Between Models

The monitor receiver does not have different models.

1-10. System Applications

a. A typical system tie-in diagram for the monitor receiver is shown in figure 1-2. The NDB transmitter is a self-contained facility (not part of the monitor receiver) and it may be physically several miles from the monitor receiver site. The NDB transmitter continuously transmits navigation information for use by aircraft flying within the designated range of the transmitter.

b. The monitor receiver continuously monitors the presence of NDB transmitter signal. Monitoring by the receiver includes signal level check as well as the presence or absence of the modulation. If a malfunction occurs and the radiated power output and/or keyed modulation drops below a predetermined level, the receiver provides an alarm condition.

c. In addition to aural and visual alarm outputs, the monitor receiver provides two additional outputs for use by the remote monitoring facility. These outputs are shown in figure 1-2.

1-11. Considerations for Optimum Performance

For best overall system operation, due consideration should be given to the following:

a. Although the whip antenna is one meter long, its effective length in terms of a wavelength of the signal fed to the receiver is only 0.2 meter. The receiver requires a minimum input of 10 uV; therefore the signal strength at the antenna must be at least 50 uV/meter. This requirement must be considered when selecting the monitor receiver site in relation to the NDB transmitter site. In practice, the receiver site is chosen so that the signal strength at the whip antenna is several times the minimum requirement of 50 uV/meter.

b. The maximum output from the 600-ohm line is 250 mW, measured at the receiver.

c. The remote alarm Form-C contacts are rated at 1 ampere.

d. If all monitoring functions of the receiver are to be carried out from the remote monitoring site, switch S1 on audio amplifier PCB should be left in the off position to inhibit the local aural alarm.

1-12. Tabulated Data

Table 1-1 details the physical and electrical characteristics of the NDB monitor receiver.

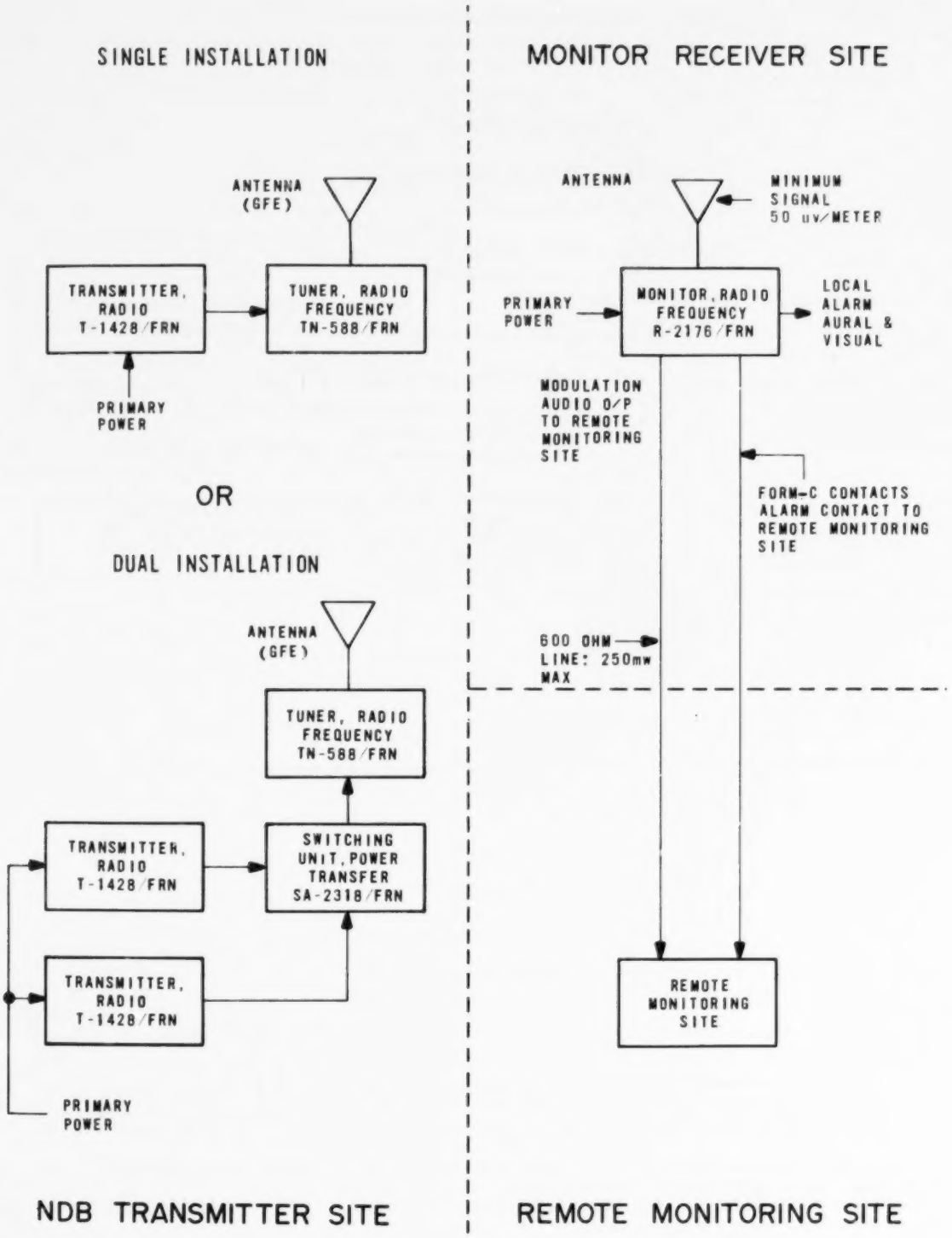

Figure 1-2. System Tie-In, Monitor, Radio Frequency R-2176/FRN.

Table 1-1. Technical Specifications, Monitor Receiver

Item	Characteristics
Frequency Range	190 to 535 kHz (crystal controlled)
Input Signal Range	10uV to 500mV
Intermediate Frequency	4.4 MHz
Crystal Frequency	4.4 MHz minus: Received Frequency
If. Bandwidth	±2 kHz
Image and If. Rejection	−70 db
Rf Bandwidth	20 kHz
Crystal Frequency Stability	10 PPM
Audio Frequency Response	Within ±3 db from 300 Hz to 2000 Hz
Audio Output (Line Output)	250mW into 600 ohms.
Audio Output (Loudspeaker)	500mW minimum.
Spurious Response	−70 db for any 10uV out-of-band signal referenced to in-band signal, 50 kHz to 150 MHz.
Harmonic Distortion	10% maximum.
Alarm Detection	Drop of carrier level of 3db or more, loss of keying or loss of modulation.
Alarm Stability	Better than ±1 db
Alarm Delay	Adjustable from approximately 0.1 to 60 seconds.
Alarm output	*a.* Audible alarm over built-in loudspeaker. *b.* Form-C contacts and modulation audio over 600 ohm balanced line for remote monitoring.
Primary Power	115V ±10% or 220V ±10%, 47 to 63 Hz.
Environmental Conditions	Operating temperature range −10°C to +50°C, 10 to 80% relative humidity.
Physical Characteristics	Receiver: 4.75 inches high, 19.0 inches wide, 8.0 inches deep; 8 pounds. Antenna: 30 inches (one meter) whip; 1.5 pounds.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

2-1. Damage From Improper Control Settings

The monitor receiver is designed to preclude the possibility of equipment damage or injury to operating personnel from improper control settings.

2-2. Controls and Indicators

Figure 2-1 shows the front panel controls and indicators for the monitor receiver. Table 2-1 details the function and use of each control and indicator.

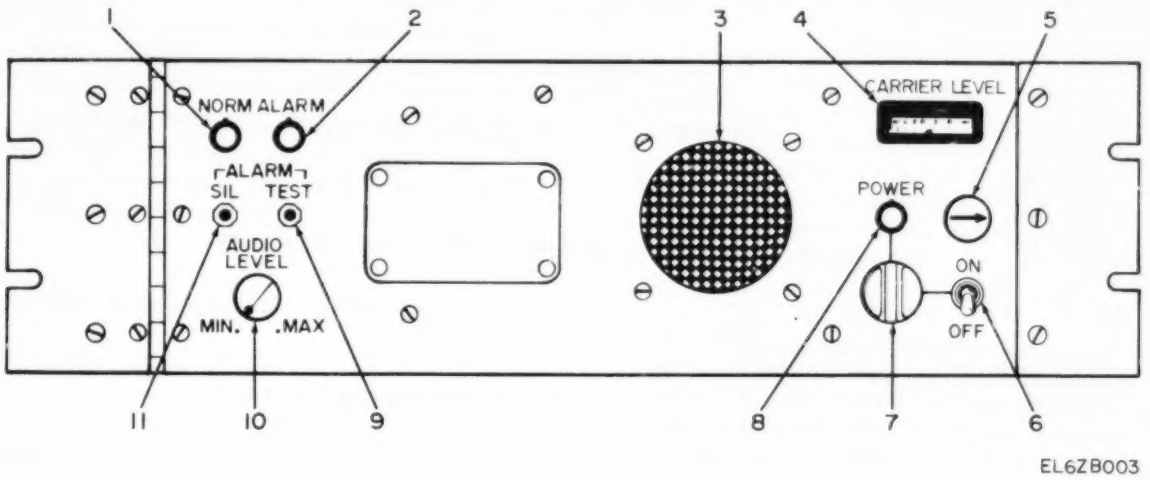

Figure 2-1. Operator Controls and Indicators.

Table 2-1. Operator Controls and Indicators

Fig. 2-1 Index No.	Control/Indicator	Function
1	NORM Light	Lights during normal operation; remains off during alarm condition.
2	ALARM Light	Lights when an alarm condition exists; remains off during normal operation.
3	Loudspeaker	Presents the modulation tones (keying) during normal operation. Presents a loud 3-kHz tone during alarm condition.
4	CARRIER LEVEL Meter	Indicates the relative strength of the signal picked up by the whip antenna. At the time of installation, the receiver is adjusted so that the normal meter reading is 0 db.
5	Front Panel Latch	When turned counterclockwise, disengages the front panel latch, permitting the front panel to swing open to make adjustments at the time of installation or during testing/troubleshooting. **NOTE** The operator is not required to open the front panel during normal operation of the monitor receiver.
6	Power ON/OFF Switch	ON Position: Switches on the monitor receiver. OFF Position: Switches off the monitor receiver.

Table 2-1. Operator Controls and Indicators—Continued

Fig. 2-1 Index No.	Control/Indicator	Function
7	Fuse	This is an indicating-type fuse in series with the ac input to the monitor receiver. When lighted, the fuse is blown and should be replaced. The indicating fuse must be *off* during normal operation.
8	POWER Light	Lights when power ON/OFF switch is in ON position and ac power to the receiver is present. NOTE The POWER light will be off if the fuse is blown even though the power ON/OFF switch may be in ON position.
9	ALARM TEST Switch	Permits operator to test the receiver alarm function. When held pressed longer than a predetermined delay (delay setting is determined at the time of installation, between 0.1 to 60 Sec), the receiver generates an alarm condition. NOTE ALARM TEST switch is provided for self-testing the receiver only; the alarm condition thus generated may be terminated by releasing the ALARM TEST switch.
10	AUDIO LEVEL Control	Permits adjustment of the loudspeaker volume; minimum volume when fully counterclockwise, maximum volume when fully clockwise. NOTE During an alarm condition, the AUDIO LEVEL control setting has no effect on the loudspeaker volume and the alarm tone is heard at full volume.
11	ALARM SIL Switch	When pressed, silences (turns off) the 3-kHz aural alarm from the loudspeaker.

Section II. OPERATION UNDER NORMAL CONDITIONS

NOTE

The initial setup and adjustments for the monitor receiver are carried out by organizational or higher category maintenance personnel. The initial setup procedure must be repeated if the monitor receiver is replaced.

CAUTION

Do not operate the receiver unless initial setup and adjustments are completed by higher category maintenance personnel.

2-3. Initial Adjustments

The monitor receiver does not require any initial adjustments by the operator. However, perform the following before switching on the monitor receiver:

a. See that the power cord is connected to the receiver, and plugged into a grounded ac outlet.

b. See that the antenna cable connector is properly mated with J1 (RF I/P 50 ohm) at the rear of the receiver.

c. See that the remote alarm contacts at TB1 (rear of unit) are properly wired for remote monitoring. Terminals TB1 (5-4) are normally open (NO) contacts and TB1 (4-3) are normally closed (NC). If remote alarm indication is not required, do not use TB1 (3, 4, 5).

d. See that the 600-ohm audio line (if used) is connected to TB1 (1-2).

2-4. Operating Procedure

a. Set power ON/OFF switch to ON. Check to see that POWER indicator (green) lights and indicating fuse are off (not lighted).

b. Set AUDIO LEVEL control to the desired volume from loudspeaker.

c. Check to see that the ALARM light (red) is off and NORM light (green) is on.

d. Check to see that the CARRIER LEVEL meter reads 0 ±1 db. During normal operation this reading (0 ±1 db) must be obtained at all times.

e. If the condition specified in steps *a* through *d* above are met, the receiver operation is normal. If any results are not satisfactory, refer to chapter 3.

2-5. Alarm Condition

If the carrier level and/or modulation of the received signal falls below the present threshold, an alarm condition will be generated as follows:

a. ALARM lamp (red) comes on.

b. NORM lamp (green) goes off.

c. A loud 3-kHz tone is presented on the loudspeaker.

NOTE

The volume of the 3-kHz alarm tone is not affected by the setting of AUDIO LEVEL control.

2-6. Operator Action During Alarm Condition

Report alarm condition to the site supervisor or designated higher maintenance category personnel. The aural alarm may be silenced by the operator by pressing the ALARM SIL switch. Note that ALARM SIL switch only inhibits the aural alarm and the red ALARM lamp remains on as long as the alarm condition exists.

2-7. Alarm Test

Check the built-in alarm test function of the monitor receiver as follows:

NOTES

The alarm verifies the operation of the monitoring circuits in the receiver. This test should be performed daily.

Always coordinate the alarm test operation with the remote monitoring site personnel so as not to provide a false alarm condition at the remote site.

a. Press and hold the ALARM TEST switch. Check to see that after expiration of the preset delay, an alarm condition is produced by the receiver.

b. Press ALARM SIL switch to silence the aural alarm.

c. Release ALARM TEST switch. Check to see that receiver reverts to normal operation. Note that normal operation will resume immediately if the carrier is modulated. If modulation is not present, the receiver will not return to normal operation until the first modulation is detected. This is normal.

2-8. Shutdown Procedure

Switch off the receiver by setting the power ON/OFF switch to OFF. When the receiver is switched off, all front panel lights must be off.

NOTE

When the receiver is switched off, the remote alarm contacts at the rear of the unit will change state, indicating an alarm condition. Coordinate shutdown procedure with the remote monitoring activity so as not to produce a false alarm.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

3-1. Scope of Operator Maintenance

This chapter provides instructions for preventive maintenance and corrective maintenance tasks authorized at the operator category.

a. Special tools or test equipment are not authorized at the operator category of maintenance.

b. The preventive maintenance checks and services (PMCS) (table 3-1) are performed by the operator. If PMCS indicates the need for troubleshooting and/or repair of the equipment, request assistance from organizational or higher category maintenance personnel.

c. The monitor receiver does not require any lubrication.

d. Operators are not authorized to paint the monitor receiver. If painting is required, refer to general support maintenance personnel.

Table 3-1. Operator's Preventive Maintenance Checks and Services

NOTE

Within designated intervals, these checks are to be performed in the order listed.

D – Daily W – Weekly M – Monthly

Item No.	Interval D	Interval W	Interval M	Item to be Inspected	Procedures Check and have repaired or Adjusted as required	Equipment will be reported Not Ready (Red) if:
					NOTE If equipment is not used daily, PMCS shall still be performed weekly.	
1		•	•	Antenna	*a.* Inspect antenna and matching module for cleanliness and security of mounting.	
		•	•		*b.* Inspect antenna cable connector for proper mating with the coaxial cable connector.	
2		•	•	Receiver	*a.* Inspect receiver for secure mounting in its designated position.	
		•	•		*b.* Inspect receiver for cleanliness and freedom from grease or other contaminants.	
	•	•	•		*c.* Check to see that front panel knobs are not loose.	
		•	•		*d.* Check to see that antenna connector at rear of receiver is properly mated with the antenna cable connector.	
					e. Check to see that TB1 connections at the rear of the unit are secure.	
					NOTE In installations where remote alarm provisions of the receiver are not used, there will be no connections to TB1.	
	•	•	•		*f.* Operate receiver (para 2-4).	If operation is not normal, refer to paragraph 3-2.
	•	•	•		*g.* Perform alarm test (para 2-7).	If operation is not normal, refer to paragraph 3-2.

3-2. Operator Troubleshooting

Table 3-2 outlines troubleshooting procedures if equipment malfunctions are detected during preventive maintenance checks or during normal operation. If a malfunction is not listed or cannot be corrected by the specified corrective action, request assistance from higher category maintenance personnel.

Table 3-2. Troubleshooting Procedures

Item	Symptom	Probable Cause	Corrective Action
1	When receiver is on, all front panel lights remain off, indicating fuse is not lighted.	*a.* No ac power *b.* Power cord from receiver not plugged to ac outlet.	*a.* Check external ac circuit breakers. *b.* Plug power cord to ac outlet.
2	Indicating fuse is lighted; all other front panel lights are off.	Front panel indicating fuse is blown.	Replace fuse (fig. 3-1).
3	NORMAL light stays off	Defective lamp in NORMAL light	Replace lamp (fig. 3-1).
4	NORMAL light is on, POWER light is off.	Defective lamp in POWER light	Replace lamp (fig. 3-1).
5	During alarm test, audible alarm sounds but ALARM light does not come on.	Defective lamp in ALARM light.	Replace lamp (fig. 3-1).
6	Aural alarm does not sound during alarm test.	Receiver defective	Report equipment failure to higher category maintenance.
7	Alarm test function cannot be initiated or completed successfully.	Receiver defective	Report equipment failure to higher category maintenance.

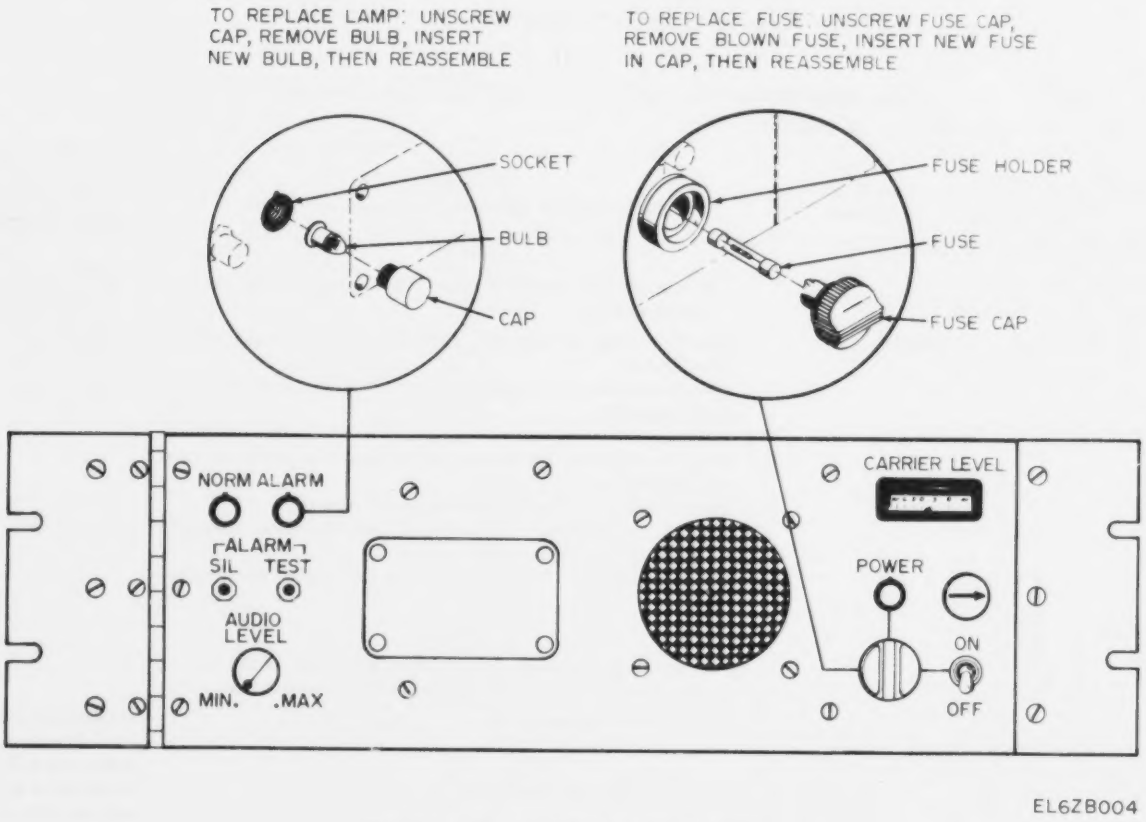

Figure 3-1. Replacement of Lamps and Fuses.

Table 3-3. Transmitting and Receiving Crystal Frequencies

XMTR Freq MHz	CR-19A/U XMTR XTAL Freq	CR-18A/U RCVR XTAL Freq	XMTR Freq MHz	CR-19A/U XMTR XTAL Freq	CR-18A/U RCVR XTAL Freq
.201	2.010	4.199	.281	2.810	4.119
.208	2.030	4.192	.282	2.820	4.118
.209	2.090	4.191	.284	2.840	4.116
.211	2.110	4.189	.286	2.860	4.114
.212	2.120	4.188	.287	2.870	4.113
.216	2.160	4.184	.293	2.930	4.107
.219	2.190	4.181	.296	2.960	4.104
.221	2.210	4.179	.308	3.080	4.092
.223	2.230	4.177	.314	3.140	4.081
.226	2.260	4.174	.325	3.250	4.075
.231	2.310	4.169	.328	3.280	4.072
.236	2.360	4.164	.329	3.290	4.071
.239	2.390	4.161	.332	3.320	4.068
.245	2.450	4.155	.335	3.350	4.065
.251	2.510	4.149	.339	3.390	4.061
.256	2.560	4.144	.341	3.410	4.059
.257	2.570	4.143	.347	3.470	4.053
.258	2.580	4.142	.349	3.490	4.051
.263	2.630	4.137	.352	3.520	4.048
.264	2.640	4.136	.353	3.530	4.047
.265	2.650	4.135	.359	3.590	4.041
.269	2.690	4.131	.363	3.630	4.037
.274	2.740	4.126	.365	3.650	4.035
.275	2.750	4.125	.379	3.790	4.021
.382	3.820	4.018	.425	4.250	3.975
.388	3.880	4.012	.428	4.280	3.972
.390	3.900	4.010	.441	4.410	3.959
.391	3.910	4.009	.446	4.460	3.954
.393	3.930	4.007	.452	4.520	3.948
.394	3.940	4.006	.465	4.650	3.935
.396	3.960	4.004	.470	4.700	3.930
.404	4.040	3.996	.475	4.750	3.925
.405	4.050	3.995	.482	4.820	3.918
.407	4.070	3.993	.488	4.880	3.912
.410	4.100	3.990	.492	4.920	3.908
.412	4.120	3.988	.507	5.070	3.893
.417	4.170	3.983	.526	5.260	3.874

NOTES

XMTR crystal frequency in MHz is 10 times transmitted frequency in MHz.
4.4 MHz minus transmitted frequency in MHz is receiver crystal frequency in MHz.

APPENDIX A

REFERENCES

Following is a list of applicable references that are available to the operator/crew personnel for Monitor, Radio Frequency R-2176/FRN.

DA Pam 310-4	Index of Technical Publications: Technical Manuals, Technical Bulletins, Supply Manuals (Type 7, 8 and 9), Modification Work Orders, Supply Bulletins and Lubrication Orders.
SB 38-100	Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army.
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 740-90-1	Administrative Storage of Equipment.
TM 750-244-2	Procedures for Destruction of Electronics Materiel to prevent Enemy Use (Electronics Command).

APPENDIX B

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the R-2176/FRN to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item. Not applicable. These items, when assembled, comprise the R-2176/FRN and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. Not applicable. These are the minimum essential items required to place the R-2176/FRN in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the R-2176/FRN during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TDA/MTDA authorization of the end item.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Part Number. Indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

e. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

f. Usable on Code. Not applicable.

g. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

h. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date; such as for shipment to another site.

(Next printed page is B-3)

SECTION II. COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) U/M	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
1-1		6625-01-098-2534	MONITOR RADIO FREQUENCY R-2176/FRN 133-700-1 (57655)		EA	1		

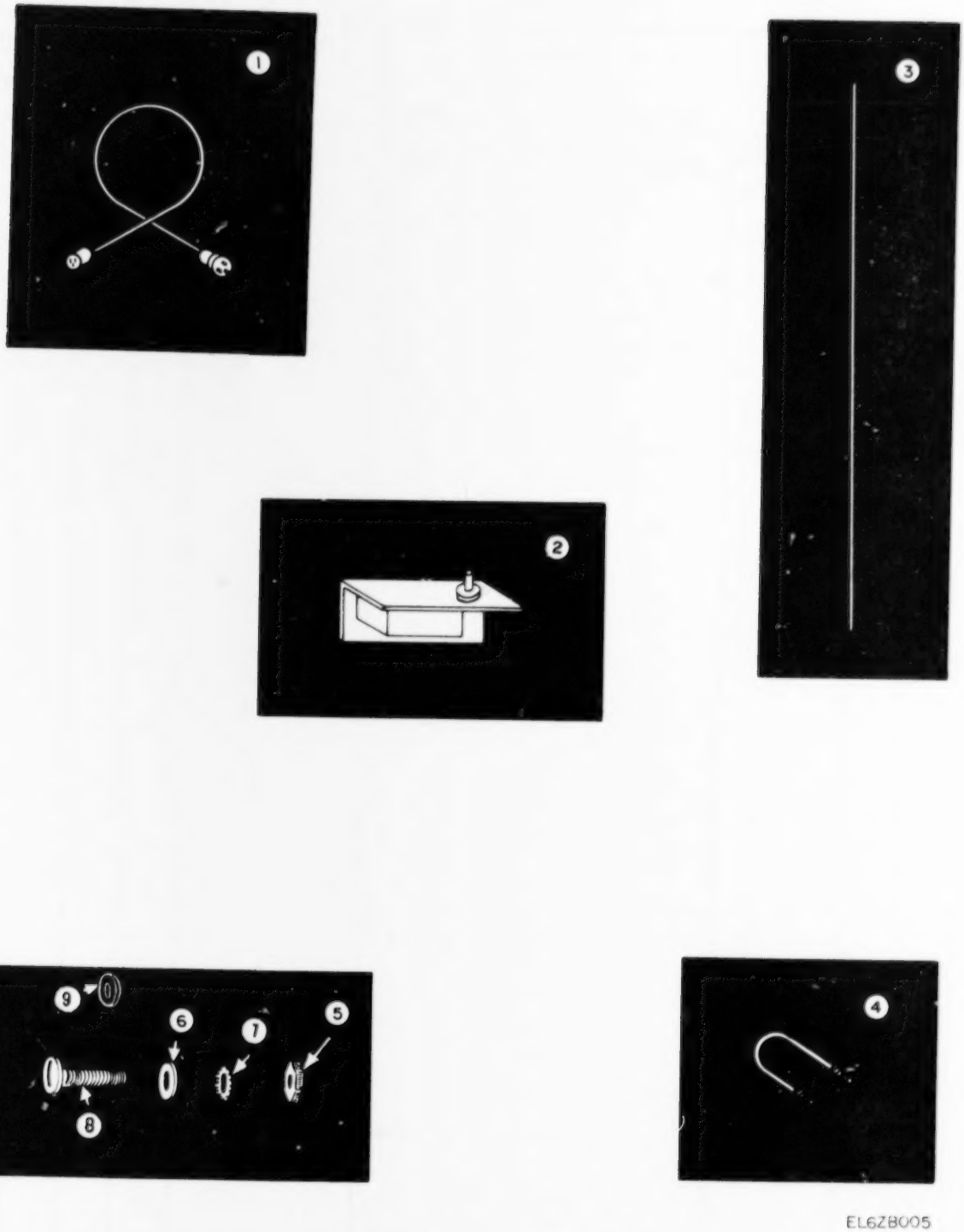

Figure B-1. Basic Issue Items.

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) U/M	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
B-1	1		AC POWER CORD ASSY 133-7050 (57655)		EA	1		
	2		ANTENNA PRE-AMP ASSY 133-7065 (57655)		EA	1		
	3		WHIP ANTENNA 133-7066 (57655)		EA	1		
	4		U-BOLT 133-7076 (57655)		EA	1		
	5	5310-00-934-9736	NUT, HEX MS 16210-6 (96906)		EA	2		
	6	5310-00-550-5054	WASHER, FLAIN MS 15795-809 (96906)		EA	2		
	7	5305-00-527-3634	WASHER, EXT, TOOTH MS 35335-61 (96906)		EA	2		
	8	5305-00-543-4358	SCREW, OVAL HEAD MS 35234-64 (96906)		EA	4		
	9	5310-00-619-1148	WASHER, FINISHING, BLACK MS 15795-808 (96906)		EA	4		

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

Section 1. INTRODUCTION

C-1. Scope

This appendix lists additional items you are authorized for the support of the R-2176/FRN.

C-2. General

This list identifies items that do not have to accompany the R-2176/FRN and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

C-3. Explanation of Listing

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

(Next printed page is C-3)

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM USABLE ON CODE	(3) UNIT OF MEAS	(4) QTY AUTH
6145-00-542-6092	CABLE, COAXIAL, RG58A/U (80058)	FT	See Note
5935-00-660-4296	CONNECTOR, TYPE N UG536B/U (80058)	EA	2
	NOTE COAXIAL CABLE RG58A/U IS USED TO CONNECT THE ANTENNA TO THE RECEIVER. THE LENGTH OF CABLE WILL VARY WITH EACH INSTALLATION AND WILL BE DETERMINED BY THE INSTALLATION TEAM. THE TWO TYPE N CONNECTORS ARE INSTALLED AT THE CABLE ENDS.		

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the R-2176/FRN. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. Explanation of Columns

a. Column 1—Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. D").

b. Column 2—Level. This column identifies the lowest level of maintenance that requires the listed item.

C—Operator/Crew

O—Organizational Maintenance/Aviation Unit Maintenance

F—Direct Support Maintenance/Aviation Intermediate Maintenance

H—General Support Maintenance

c. Column 3—National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4—Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by a part number.

e. Column 5—Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

(Next printed page is D-3)

SECTION II EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS
1	H	6810-00-754-2813	TRICHLOROTRIFLUOROETHANE (FOR CLEANING OF ELECTRICAL PARTS)	OZ.
2	O	7930-00-531-9715	CLEANING DETERGENT (FOR GENERAL CLEANING)	GAL.
3	O	5805-00-222-2423	LINT-FREE CLOTH (FOR GENERAL CLEANING)	SQ FT

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-20P	23 Jan 78	Radar Set AN/PRC-76

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PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO
33			
44		19	
45			

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

For item 2, change the NSN to read: 5835-00-134-9186.
Reason: Accuracy.

Identify the cover on the junction box (item no. 5).
Reason: It is a separate item and is not called out on figure 19.

Add the cover of the junction box as an item in the listing for figure 19.
Reason: Same as above

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpirit of 999-1776

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I. M. DeSpirit

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For explanation of abbreviations used, see AR 310-50.